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09/897,870	07/02/2001	Rainer Sommer	10191/1867	1391
26646 7590 02/20/2007 KENYON & KENYON LLP ONE BROADWAY NEW YORK, NY 10004			EXAMINER FIEGLE, RYAN PAUL	
			ART UNIT 2183	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

09/897,870

Applicant(s)

SOMMER, RAINER

Examiner

Ryan P. Fiegler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. The examiner respectfully acknowledges and acknowledges with gratitude the amendments to the claims to remedy the claim objections.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1- 4, 6- 8, 10-14 and 16-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Titherley, U.S. 4,489,414 in view of The Plug and Play ISA Specification, a joint publication by Intel and Microsoft herein referred to as PnPISA and "Transforming the PC: Plug and Play" by Halfhill, herein referred to as Halfhill.
4. As per claim 1, Titherley teaches a method for controlling a run of a program executable on at least one microprocessor (Titherley: 8085A Microprocessor, figure 2) of a microcontroller, comprising the steps of:
  - a. Reading in information regarding a hardware of the microcontroller from at least one information register of the microcontroller: Module 7, EPROM 2716, is an information register that contains initialization routines to configure ports 12 and 13, to cause the peripheral to start the disc drive motor, to cause the display to display different messages and to prompt the user, and to make the

microprocessor wait for data to be entered via the keyboard. The routines that are read in are information regarding hardware of the microcontroller. [Titherley: Column 4, lines 25-64]

b. And actuating at least one switch via which the program run is controlled as a function of the information read in: The I/O ports 12 and 13 are reconfigured by the information read in, which is an actuation of at least one switch. A signal is set to the peripheral to start the motor, which is also an actuation of a switch. The displays are altered to display different messages, which is an actuation of a switch as well. Each of these is caused by the information read in and affect the way the program is controlled. [Titherley: Column 4, lines 25-64]

Titherley does not teach program execution only depending on information in the at least one information register of the microcontroller, which is special for each microcontroller step without other external or operator influences.

It is the opinion of the examiner that all this simply describes is the functionality of Plug and Play, a term coined by (though not explicitly trademarked) Microsoft and Intel prior to the release of Windows95. Plug and Play was developed by Microsoft in conjunction with Intel and other hardware manufactures with the intent to be able to plug in a peripheral and not have to do anymore external configuration (i.e. jumpers, switches) or software configuration (i.e. config files). While the idea was actually originated by Macintosh and bus protocols such as EISA and MCA, Plug and Play was the ISA that brought the concept into the mainstream.

The idea behind plug and play is to be able to isolate and identify each component connected to the system and then configure it to work with that system (PnPISA: 3.2-3.3.2).

The advantages of using a plug and play like functionality are plentiful and apparent (PnPISA: 1.1). An article sent to the applicant by Halfhill also outlines other aspects brought on by plug and play, mainly financial savings spurred by decreased complexity, which lowered tech support costs.

It is easy to see that this aspect has trickled into other portions of computing. Applied to Titherley, this would mean that user input would no longer be necessary since the system would be able to detect what the device was and what test needed to be performed; the steps outlines in Titherley column 4, lines 46-64 would be automated. This is similar to the PnP power-on self-test, or POST.

Therefore, it would have been obvious to one of ordinary skill in the pertinent art at the time of the applicant's invention that applying plug and play functionality to Titherley would be able reduce the complexity of the system, which is a burden to the user, and thus automate the system.

5. As per claim 2, Titherley teaches the method according to claim 1, wherein: the information read in corresponds to at least one of the at least one microprocessor of the microcontroller and at least one additional component of the microcontroller. The information read in corresponds to the Ports 12 and 13, an additional component of the microcontroller, because the information is used for initializing them. [Titherley: Column 4, lines 25-64]

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6. As per claim 3, Titherley teaches the method according to claim 1, further comprising the step of:

c. Controlling a run of a test program that is executable on the at least one microprocessor of the microcontroller of a testing device and is for testing at least one of an additional microcontroller of a control unit: The test program is for testing the peripheral (in the example, a disc drive). [Titherley: Column 3, lines 4-5 and column 4, line 65 to column 5, line 40].

d. And a control program executable on at least one microprocessor of the additional microcontroller: The disc drive receives signals that make up commands from the microprocessor 8085A and I/O ports 12 and 13. The disc drive executes the commands it receives, the commands therefore making up an executable control program. Microprocessor is defined as, "An integrated circuit that contains the logic elements for manipulating data and for making decisions." (The Authoritative Dictionary of IEEE Standards Terms, 7th ed.) The disc drive receives signals and decides how to handle the signals, i.e., start the motor, read, write, etc. The disc drive also writes data to different areas of a disc, sometimes overwriting old data, and therefore is manipulating data. Therefore, a disc drive inherently has a microprocessor, which is executing the control program.

e. The controlling being performed as a function of information regarding a hardware of the additional microcontroller: The controlling being performed is a

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function of information entered by the user regarding the disc drive's hardware specifications. [Titherley: Column 4, lines 46-64]

7. As per claim 4, Titherley teaches the method according to claim 1, further comprising the step of:

f. Controlling a run of a control program that is executable on the at least one microprocessor of the microcontroller of a control unit: The user inputs information that controls the run of the control program that is executable on the microprocessor 8085A. [Titherley: Column 4, lines 46-64]

g. And is for controlling/regulating technical operations and processes: The control program receives information from the user about the specifications of the disc drive. This is for controlling communications with the disc drive, which are technical operations and processes. [Titherley: Column 4, lines 46-64]

h. The controlling being performed as a function of the information regarding the hardware of the microcontroller. Communication with the peripheral occurs through ports 12 and 13, which was part of the information regarding the hardware of the microcontroller. [Titherley: Column 4, lines 25-45]

8. As per claim 6, Titherley teaches a control element for one of a control unit of an internal combustion engine, the control element including a microcontroller, and a testing device for testing at least one of the microcontroller, the control unit including the microcontroller, and a program executable on at least one microprocessor of a microcontroller, the control element comprising:

-The "internal combustion engine" of the preamble is given no patentable weight because it is an intended use and has no further mention or disclosure in the body of the claim.

- i. A storage medium (Titherley: Figure 2, 2716 EPROM) storing a program sequence that can be executed on a computing element (Titherley: Figure 2, Microprocessor 8085A), the program sequence causing the computing element to: [Titherley: Column 3, line 66 to column 4, line 6, column 4, lines 25 to column 5, line 14]
- j. Read in information regarding a hardware of the microcontroller from at least one information register of the microcontroller: EPROM 2716 is made up of addressable memory locations (i.e., registers), which contain information regarding hardware of the microcontroller (all of figure 2 except the peripheral under test, module 8). [Titherley: Column 4, lines 25 to column 5, lines 14]
- k. And actuate at least one switch via which a program run is controlled as a function of the information read in: The I/O ports 12 and 13 are reconfigured as output ports based on the information read from module 7 (Titherley: EPROM 2716), which is an actuation of a switch. [Titherley: Column 4, lines 25-37]

Titherley does not teach program execution only depending on information in the at least one information register of the microcontroller, which is special for each microcontroller step without other external or operator influences.

It is the opinion of the examiner that all this simply describes is the functionality of Plug and Play, a term coined by (though not explicitly trademarked) Microsoft and Intel



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prior to the release of Windows95. Plug and Play was developed by Microsoft in conjunction with Intel and other hardware manufactures with the intent to be able to plug in a peripheral and not have to do anymore external configuration (i.e. jumpers, switches) or software configuration (i.e. config files). While the idea was actually originated by Macintosh and bus protocols such as EISA and MCA, Plug and Play was the ISA that brought the concept into the mainstream.

The idea behind plug and play is to be able to isolate and identify each component connected to the system and then configure it to work with that system (PnPISA: 3.2-3.3.2).

The advantages of using a plug and play like functionality are plentiful and apparent (PnPISA: 1.1). An article sent to the applicant by Halfhill also outlines other aspects brought on by plug and play, mainly financial savings spurred by decreased complexity, which lowered tech support costs.

It is easy to see that this aspect has trickled into other portions of computing. Applied to Titherley, this would mean that user input would no longer be necessary since the system would be able to detect what the device was and what test needed to be performed; the steps outlines in Titherley column 4, lines 46-64 would be automated. This is similar to the PnP power-on self-test, or POST.

Therefore, it would have been obvious to one of ordinary skill in the pertinent art at the time of the applicant's invention that applying plug and play functionality to Titherley would be able reduce the complexity of the system, which is a burden to the user, and thus automate the system.

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9. As per claim 7, Titherley teaches the control element according to claim 6, wherein: the computing element includes the at least one microprocessor: the computing element is Microprocessor 8085A. [Titherley: Figure 2]

10. As per claim 8, Titherley teaches the control element according to claim 6, wherein: the storage medium includes one of a read only memory and a flash memory: The storage medium is EPROM 2716. [Titherley: Figure 2]

11. As per claim 10, Titherley teaches a microcontroller, comprising:

l. At least one microprocessor (Titherley: 8085A Microprocessor, figure 2) including a program that is executable on the at least one microprocessor:

Multiple routines are executed by the microprocessor. [Titherley: Column 3, lines 23-33, and line 66 to column 4, line 6, column 4, lines 25-64]

m. At least one information register: EPROM 2716, (Titherley: module 7), is contains addressable information. [Titherley: Column 4, lines 25-50]

n. An arrangement for reading in information regarding a hardware of the microcontroller from the at least one information register: EPROM 2716 is made up of addressable memory locations (i.e., registers), which contain information regarding hardware of the microcontroller (made up of all of figure 2 except the peripheral under test, module 8). [Titherley: Column 4, lines 25 to column 5, lines 14]

o. And at least one switch actuatable as a function of the information read in: The I/O ports 12 and 13 are reconfigured as output ports based on the

information read from module 7 (Titherley: EPROM 2716), which is an actuation of a switch. [Titherley: Column 4, lines 25-37]

p. And for controlling a run of the program executable on the at least one microprocessor: The I/O ports 12 and 13 are reconfigured as output ports based on the information read from module 7 (Titherley: EPROM 2716), which are used for controlling a run of the program executable. Data is passed through the I/O that affects the control of the program. [Titherley: Column 4, lines 25 to column 5, line 40]

Titherley does not teach program execution only depending on information in the at least one information register of the microcontroller, which is special for each microcontroller step without other external or operator influences.

It is the opinion of the examiner that all this simply describes is the functionality of Plug and Play, a term coined by (though not explicitly trademarked) Microsoft and Intel prior to the release of Windows95. Plug and Play was developed by Microsoft in conjunction with Intel and other hardware manufactures with the intent to be able to plug in a peripheral and not have to do anymore external configuration (i.e. jumpers, switches) or software configuration (i.e. config files). While the idea was actually originated by Macintosh and bus protocols such as EISA and MCA, Plug and Play was the ISA that brought the concept into the mainstream.

The idea behind plug and play is to be able to isolate and identify each component connected to the system and then configure it to work with that system (PnPISA: 3.2-3.3.2).

The advantages of using a plug and play like functionality are plentiful and apparent (PnPISA: 1.1). An article sent to the applicant by Halfhill also outlines other aspects brought on by plug and play, mainly financial savings spurred by decreased complexity, which lowered tech support costs.

It is easy to see that this aspect has trickled into other portions of computing. Applied to Titherley, this would mean that user input would no longer be necessary since the system would be able to detect what the device was and what test needed to be performed; the steps outlines in Titherley column 4, lines 46-64 would be automated. This is similar to the PnP power-on self-test, or POST.

Therefore, it would have been obvious to one of ordinary skill in the pertinent art at the time of the applicant's invention that applying plug and play functionality to Titherley would be able reduce the complexity of the system, which is a burden to the user, and thus automate the system.

12. As per claim 11, Titherley teaches the microcontroller according to claim 10, wherein: the information read in corresponds to at least one of the at least one microprocessor of the microcontroller and at least one additional component of the microcontroller: The information read in corresponds to the Ports 12 and 13, an additional component of the microcontroller, because the information is used for initializing them. [Titherley: Column 4, lines 25-64]

13. As per claim 12, Titherley teaches the microcontroller according to claim 11, wherein: the information regarding the at least one additional component of the microcontroller includes information about at least one of an internal storage element,

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an analog/digital (A/D) converter, a digital/analog (D/A) converter, and at least one databus: The information read in reconfigures the I/O ports 12 and 13, which are used to communicate with the peripheral under test via data buses. The information read is about data buses because it determines how the ports are configured and therefore how the data buses will be used. [Titherley: Figure 2, column 4, lines 25-45 Column 3, lines 23-48]

14. As per claim 13, Titherley teaches the microcontroller according to claim 10, wherein: the microcontroller is part of a testing device for testing at least one of an additional microcontroller, a control unit, and the program executable on the at least one microprocessor: The microcontroller shown in figure 2 (all components except Peripheral Under Test, module 8) is for testing peripheral devices, and the example microcontroller is a disc drive. [Titherley: Column 4, line 25 to column 5, line 40]

15. As per claim 14, Titherley teaches the microcontroller according to claim 10, wherein: the microcontroller is part of a control unit for controlling/regulating technical operations and processes. The microcontroller is for testing and exercising external devices or running self-diagnostic routines, which are technical operations and processes. [Titherley: Column 3, line 66 to column 4, line 6 and abstract]

16. As per claim 16, Titherley teaches the method according to claim 2, wherein:

- q. The information regarding the at least one additional component of the microcontroller includes information about at least one of an internal storage element, an analog/digital (A/D) converter, a digital/analog (D/A) converter, and at least one databus: The information read in reconfigures the I/O ports 12 and

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13, which are used to communicate with the peripheral under test via data buses.

The information read is about data buses because it determines how the ports are configured and therefore how the data buses will be used. [Titherley: Figure 2, column 4, lines 25-45 Column 3, lines 23-48]

17. As per claim 17, Titherley teaches the control element according to claim 6, wherein:

r. The information read in corresponds to at least one of the at least one microprocessor of the microcontroller and at least one additional component of the microcontroller: The information read in corresponds to the Ports 12 and 13, an additional component of the microcontroller, because the information is used for initializing them. [Titherley: Column 4, lines 25-64]

18. As per claim 18, Titherley teaches the control element according to claim 17, wherein:

s. The information regarding the at least one additional component of the microcontroller includes information about at least one of an internal storage element, an analog/digital (A/D) converter, a digital/analog (D/A) converter, and at least one databus. The information read in reconfigures the I/O ports 12 and 13, which are used to communicate with the peripheral under test via data buses. The information read is about data buses because it determines how the ports are configured and therefore how the data buses will be used. [Titherley: Figure 2, column 4, lines 25-45 Column 3, lines 23-48]

19. As per claim 19, Titherley teaches the method according to claim 1, wherein

t. The program run is controlled by one of activating and deactivating at least one of command sequences for specific features of the microcontroller and workarounds: (The testing program, once initialization is completed, allocates specific functions to the keys S1-S5. These test specific features of whatever peripheral is attached to the testing device via I/O connector 6 (Titherley: shown in figure 2). Activating the specific testing command sequence occurs when any of the keys S1-S5 is pressed, and deactivating the command sequence occurs when the tests are finished. For instance, when S1 is pressed (activating), the drive will step to a specified track number, "then return to the routine which outputs the drive status and awaits a further key operation" (deactivating).

[Titherley: Column 4, line 55 to column 5, lines 40]

20. As per claim 20, Titherley teaches the method of claim 1, wherein:

u. The information read in corresponds to at least one of a manufacture, model, type and size of components of the microcontroller: The information is used to initialize components of a certain manufacture, model and type, and therefore corresponds to a manufacture, model and type. [Titherley: Column 4, lines 25-45]

21. As per claim 21, Titherley teaches the control element of claim 6, wherein:

v. The information read in corresponds to at least one of a manufacture, model, type and size of components of the microcontroller: The information is used to initialize components of a certain manufacture, model and type, and

therefore corresponds to a manufacture, model and type. [Titherley: Column 4, lines 25-45]

22. As per claim 22, Titherley teaches the microcontroller according to claim 10, wherein:

w. The information read in corresponds to at least one of a manufacture, model, type and size of components of the microcontroller: The information is used to initialize components of a certain manufacture, model and type, and therefore corresponds to a manufacture, model and type. [Titherley: Column 4, lines 25-45]

23. As per claim 23, Titherley teaches the method according to claim 1, wherein the information is read in from a read-only information register: [Titherley: EPROM 2716, figure 2 and col. 4, lines 25-40.]

24. Given the similarities between claim 23 and claims 24 and 25, the arguments as stated for the rejection of claim 23 also apply to claims 24 and 25.

25. As per claim 26, Titherley teaches the method according to claim 1, wherein the program run occurs without external intervention for operating or displaying as to a program time sequence: [The program run requires the hardware shown in figure 2 and the operator. No external intervention from anything outside the hardware of figure 2 and the operator is necessary. Therefore, the program run occurs without external intervention for operating or displaying.]

26. Given the similarities between claim 26 and claims 27 and 28, the arguments as stated for the rejection of claim 26 also apply to claims 27 and 28.



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27. As per claim 29, Titherley teaches the method according to claim 1, wherein there is only one control program for different hardware configurations: [Module 7 contains a number of routines which constitute one control program which can control multiple different hardware configurations dependent on the data input by the operator. Col. 4, line 55 to col. 5, line 37.]

28. Given the similarities between claim 29 and claims 30 and 31, the arguments as stated for the rejection of claim 29 also apply to claims 30 and 31.

29. As per claim 32:

Titherley teaches a method for controlling a run of a program executable on at least one microprocessor of a microcontroller, comprising:

reading in information regarding a hardware of the microcontroller from at least one information register of the microcontroller . [Titherley: Column 4, lines 25-64]; and

actuating at least one switch via which the program run is controlled as a function of the information read in [Titherley: Column 4, lines 25-64]

wherein the program is executable using at least two different microcontroller steps, and that in the at least one information register of the microcontroller, the information directly relates to hardware of a special microcontroller step and that, depending on this information, execution of the program is switchable so that only program parts are executed which are necessary for the special microcontroller step, so that the execution of the program is directly related to the special microcontroller step. [Titherley: Column 4, lines 25-64] (The information contained in module 7 directly relates to the peripheral being tested. Upon reading the module, the monitor configures

the ports of devices 12 and 13 to perform the specific tasks needed to test the peripheral).

Through the use of plug and play, motivation for which has been described above, the monitor will then be able to execute tests absent of user input since it is known which device is being tested.

30. Claims 5, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Titherley, U.S. Patent 4,489,414 in combination with PnPISA in view of Simar Jr. et al., U.S. Patent 6,182,203, herein referred to as Simar.

31. As per claim 5, Titherley teaches the method according to claim 4, wherein the invention shown in figure 2 is a portable, self-contained, engineer's diagnostic tool with can be used independent of a host computer for testing and controlling (during testing) of another device it is attached to. However, Titherley fails to further teach wherein the diagnostic tool is used for testing a device within a motor vehicle, and therefore fails to teach the technical operations and processes relate to a motor vehicle.

32. Simar teaches the use of processors in engine control units for motor vehicles in Figure 83 and column 88, lines 36-59. Simar also specifically teaches the use of their processor for real-time applications being used in engine control in column 88, lines 36-59.

33. It would have been obvious to one of ordinary skill in the art to use the disclosed portable diagnostic processor of Titherley to test a vehicle because it is portable and can be used independently of a host computer, which one of ordinary skill in the art would have recognized as being a benefit when testing device in a motor vehicle. This

would have provided the motivation to use the invention of Titherley to test devices within a motor vehicle, and therefore having the technical operations and processes relating to a motor vehicle.

34. As per claim 9, Titherley teaches the control element according to claim 6 wherein the invention shown in figure 2 is a portable, self-contained, engineer's diagnostic tool with can be used independent of a host computer for testing and controlling (during testing) of another device it is attached to. However, Titherley fails to further teach wherein the control element is for a control unit of an internal combustion engine and wherein the internal combustion engine is of a motor vehicle.

35. Simar teaches the use of processors in engine control units for motor vehicles in Figure 83 and column 88, lines 36-59. Simar also specifically teaches the use of their processor for real-time applications being used in engine control in column 88, lines 36-59.

36. It would have been obvious to one of ordinary skill in the art to use the disclosed portable diagnostic processor of Titherley to test a vehicle because it is portable and can be used independently of a host computer, which one of ordinary skill in the art would have recognized as being a benefit when testing a device in a motor vehicle. This would have provided the motivation to use the invention of Titherley to test devices within a motor vehicle, and therefore having the control element for a control unit of an internal combustion engine of a motor vehicle.

37. As per claim 15, Titherley teaches the microcontroller according to claim 14 wherein the invention shown in figure 2 is a portable, self-contained, engineer's

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diagnostic tool with can be used independent of a host computer for testing and controlling (during testing) of another device it is attached to. However, Titherley fails to further teach wherein: the technical operations and processes relate to a motor vehicle.

38. Simar teaches the use of processors in engine control units for motor vehicles in Figure 83 and column 88, lines 36-59. Simar also specifically teaches the use of their processor for real-time applications being used in engine control in column 88, lines 36-59.

39. It would have been obvious to one of ordinary skill in the art to use the disclosed portable diagnostic processor of Titherley to test a vehicle's microcontrollers because it is portable and can be used independently of a host computer, which one of ordinary skill in the art would have recognized as being a benefit when testing device in a motor vehicle. This would have provided the motivation to use the invention of invention Titherley to test devices within a motor vehicle, and therefore having the technical operations and processes relating to a motor vehicle.

### ***Response to Arguments***

40. Applicant's arguments filed 1/25/07 have been fully considered but they are not persuasive.

41. The applicant has made the following argument:

"At any one time, the portable test equipment is only attached to one peripheral under test, or at most a plurality of serially attached devices, such as daisy chained devices described at col. 5, lines 1-5.

"In contrast, the 'Plug and Play' reference is directed to arbitrating conflicting demands for system resources by a plurality of cards attached to an ISA bus. The plurality of cards are all simultaneously attached to the ISA bus, creating a situation in which the plurality of ISA cards are

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effectively attached in parallel. Thus, the aim and technological bent of the 'Plug and Play' reference is to arbitrate simultaneous requests from a plurality of parallel devices. Accordingly, it would not be obvious to one of ordinary skill in the art to apply such a technology arbitrating simultaneous and parallel requests, as described in the 'Plug and Play' reference, to the single or serial device situation of the "Titherley" reference because one of ordinary skill in the art would not think to apply a technology created for parallel devices to a situation involving a single or serial devices." (emphasis omitted)

While the applicant is correct in the fact that plug and play offers the ability of servicing multiple, parallel requests from multiple peripherals, that is not the functionality that the examiner cited, nor is the technology limited to this.

Consider an example – a consumer wishes to install a network card on his desktop computer. The card is plug and play compatible, but for plug and play to recognize the card it must be used in parallel with multiple cards. However, the consumer doesn't *want* another card, he just wants his network card to work. If plug and play did in fact work this way, it would be a reseller's dream, but thankfully it does not. Yes, plug and play is still functional when only a single card is in use.

The main functionality that comes in handy when applied to Titherley is the ability for the system to ascertain what the peripheral is without user input.

42. The applicant has made the following argument:

"However, the Applicants respectfully disagree that modifying the 'Titherley' reference to apply plug and play functionality would in fact reduce the complexity of the 'Titherley' reference. It is instead submitted that applying plug and play functionality would greatly increase the complexity of the system of the 'Titherley' reference. For example, the portable test equipment of the 'Titherley' reference would need to be modified and enhanced to communicate with plug and play devices in a manner that would accomplish the 'Plug and Play' functionality, for example, steps 1-7 as shown in FIG. 2 on page 5 of the 'Plug and Play' reference, which is significantly more complex than the manner which the 'Titherley' reference already communicates with the peripheral under test."

Perhaps the examiner should have been clearer by what was meant by "complexity of the system." Complexity mainly referred to complexity as Halfhill addressed the term – complexity in user interface. Halfhill explains that the introduction

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of plug and play made installing hardware much easier, and thus lowered tech support costs.

Applying this aspect to Titherley, it is easy to see why plug and play would be desirable. Titherley teaches a portable test device that is used by a technician. By automating the steps outlined in Titherley column 4, lines 46-64 using plug and play, the worker could be less skilled than previously, thus saving the managing company money.

The internal complexity is irrelevant in this situation. The cost/chip for plug and play functionality is extremely low considering the cost/benefit analysis.

43. The applicant has made the following argument:

"The peripherals that the 'Titherley' reference were intended to test are not plug and play enabled peripherals."

The examiner reminds the applicant that a 103 rejection must be obvious **at the time of the applicant's invention**. While this is a very old case, the applicant must concede that plug and play devices were extremely common if not mandatory at the time of the applicant's invention. The modification of Titherley **at the time of the applicant's invention** would be much more functional if it could test plug and play enabled peripherals.

44. The applicant has made the following argument:

"Within the context of the 'Titherley' reference, this requirement to replace all hardware would at the very least be incredibly burdensome, and would consequently dissuade one of ordinary skill in the art from modifying the 'Titherley' reference."

As an editorial, the applicant must recognize Halfhill's creative digression in the use of hyperbole. The only thing that will need to be replaced is the microprocessor and

system bus. While this may seem like a lot to a home consumer upgrading his PC, it does not amount to nearly as much to a company modifying and distributing Titherley's device for modern times, again, at the time of the applicant's invention.

### ***Conclusion***

45. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan P. Fiegle whose telephone number is 571-272-5534. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 571-272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan P Fiegler  
Examiner  
Art Unit 2183



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